

Claims

1. (Amended) A speech transformation apparatus comprising:

acousto-electric transducing means for detecting the speech to generate speech signals;

recognition means for performing speech recognition processing using the speech signals from said acousto-electric transducing means;

transforming means for working on and transforming the result of recognition from said recognition means depending on the using objectives;

output control means for generating a control signal for outputting the result recognized by said recognition means and/or the result of recognition obtained on working and transformation operations by said transforming means; and

output means for outputting the result of recognition recognized by said recognition means and worked on and transformed by said transforming means based on said control signal generated by said control means to present the result of recognition to the user, and wherein

said output means is display means for demonstrating an image or electro-acoustic transducing means for outputting speech; and wherein

said output control means generates a control signal so that the result of recognition worked on and transformed and/or the result of recognition not worked on or transformed is demonstrated as an image on display means of said output means, and generates a control signal for outputting from said electro-acoustic transducing

means the result of recognition and/or the result of recognition worked on and transformed as speech.

2. The speech transformation apparatus according to claim 1 wherein said acousto-electric transducing means generates the speech uttered with voice and speech disorder to generate speech signals; and wherein

said transforming means includes speech recognition means for performing processing for speech recognition based on speech signals from said acousto-electric transducing means, storage means for memorizing speech data generated on previously sampling the speech uttered without voice-speech disorders and speech information generating means for generating the speech information indicating the output speech, using the speech data memorized in said storage means, based on the result of recognition by said speech recognition means.

3. (Deleted)

4. (Amended) The speech transformation apparatus according to claim 1 wherein said output control means includes data storage means having stored therein data indicating a pattern for demonstration on said display means, and manages control, based on the result recognized by said recognition means and/or the result of recognition obtained on working on or transforming said recognized result by said transforming means, for reading out data stored in said data storage means to demonstrate the pattern indicated by said data on said display means.

5. (Deleted)

6. (Amended) The speech transformation apparatus according to claim 1 wherein said output control means generates a control signal so that an image will be demonstrated on said display means for the speech uttered by a user and/or a person other than the user, said output control means amplifying the sound pressure level of the speech uttered by the user and/or a person other than the user for outputting the sound as speech from said electro-acoustic transducing means.

7. (Amended) The speech transformation apparatus according to claim 1 wherein said output control means generates a control signal, responsive to the result of recognition, for demonstrating the meaning and the contents of the speech detected by said acousto-electric transducing means.

8. (Deleted)

9. (Deleted)

10. (Deleted)

11. (Deleted)

12. (Deleted)

13. (Deleted)

14. The speech transformation apparatus according to claim 1 wherein said output means is detachable with respect to the user.

15. The speech transformation apparatus according to claim 1 wherein the speech is fed through a communication network to said acousto-electric transducing means and wherein said communication means outputs the result of recognition from said output

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means to said communication network.

16. The speech transformation apparatus according to claim 1 wherein said recognition means performs speaker recognition processing on the input speech to generate the result of recognition associated with each speaker; and wherein said output means presents the information pertinent to each speaker to the user.

17. The speech transformation apparatus according to claim 2 further comprising:

imaging means for photographing an image;

said imaging means outputting the photographed image at least to display means.

18. (Amended) The speech transformation apparatus according to claim 17 wherein said imaging means performs image transforming processing on the photographed image depending on the using objectives to output the transformed image to said display means.

19. The speech transformation apparatus according to claim 17 wherein said imaging means is detachable with respect to the user.

20. (Amended) The speech transformation apparatus according to claim 1 wherein said communication means is connected to an external equipment contained in an external network; and wherein

data from an external equipment is outputted as result of recognition worked on or transformed depending on the using objectives.

21. The speech transformation apparatus according to claim 20 wherein said

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communication means outputs speech signals, generated by said acousto-electric transducing means, the result of recognition obtained by said recognition means and/or the result of recognition as worked on and transformed by transforming means to an external equipment to obtain the result of recognition and/or the result of recognition as worked and transformed from said external equipment.

22. The speech transformation apparatus according to claim 20 wherein said communication means receives a program adapted for changing the processing contents of said recognition means and/or said working and transformation means from an external equipment; and wherein

said recognition means and/or said working and transformation means generates the result of recognition and/or the results of working and transformation operations based on said program received by said communication means.

23. The speech transformation apparatus according to claim 1 wherein said output control means manages control to output the result of recognition and/or the transformed result of recognition simultaneously or with a time difference.

24. (Amended) The speech transformation apparatus according to claim 1 wherein said acousto-electric transducing means, recognition means, transforming means, output control means and the output means are designed as respective plural devices, depending on the using objectives, and wherein

the respective devices are interconnected over a radio route to transmit/receive at least the result of recognition and/or the transformed result of recognition.

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25. The speech transformation apparatus according to claim 2 wherein said acousto-electric transducing means detects the speech uttered using auxiliary means or devices used for correcting voice-speech disorders, as the speech uttered by a person with voice-speech disorders, to generate speech signals.

26. The speech transformation apparatus according to claim 25 wherein said acousto-electric transducing means detects the speech uttered using speech production substitutes, as the speech uttered by a person with voice-speech disorders, to generate speech signals.

27. The speech transformation apparatus according to claim 25 wherein said acousto-electric transducing means detects the speech uttered by a person with voice-speech disorders, using a technique used for correcting the voice-speech disorders, other than the speech production substitutes, as the speech uttered with voice-speech disorders, to generate speech signals.

28. (Amended) A speech transformation method comprising:

detecting the speech to generate speech signals;

performing speech recognition processing using speech signals from acousto-electric transducing means;

working on or transforming the result of recognition depending on the using objectives;

generating a control signal for outputting the result of recognition and/or the result of recognition worked on or transformed; and

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outputting the result of recognition and/or the result of recognition worked on or transformed as an image and speech based on said control signal for presentation to the user.

29. The speech transformation method according to claim 28 wherein the speech uttered by a person with voice-speech disorders is detected to generate speech signals;

the speech is recognized based on speech signals; and

the speech information representing the speech outputted using speech data generated on pre-sampling based on the result of recognition is generated.

30. (Deleted)

31. (Added) The speech transformation apparatus according to claim 1 wherein said transforming means includes first transforming means for performing working and transformation operations to demonstrate the result of recognition as an image, and second transforming means for performing working and transformation operations to output the result of recognition as speech.

32. (Added) The speech transformation apparatus according to claim 1 further comprising:

a sensor for sensing the user's movement; and wherein

said output means forms a VR (virtual reality) based on the information as detected by said sensor and the result of recognition worked on and transformed by said transforming means.

33. (Added) The speech transformation apparatus according to claim 1 further

comprising:

a sensor for sensing the user's movement; and wherein
said output means forms an AR (augmented reality) based on the information
as detected by said sensor and the result of recognition worked on and transformed by
said transforming means.

34. (Added) The speech transformation apparatus according to claim 1 further
comprising:

a speech dialogue function; wherein
said transforming means works on and transforms the result recognized by said
recognition means based on the result of the dialogue in said speech dialogue function.